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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/937,973	10/01/2001	Massimo Brambilia	267.160	9023

7590 03/24/2004

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EXAMINER	
WINTER, GENTLE E	

ART UNIT	PAPER NUMBER
1746	

DATE MAILED: 03/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/937,973	BRAMBILIA ET AL.	
	Examiner	Art Unit	
	Gentle E. Winter	1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-20 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1-14 are rejected under 35 U.S.C. 102(a) as being anticipated by United States Patent No. 6,022,634 to Ramunni et al. "Ramunni". Ramunni and claim 1 both disclose a stack of polymeric membrane fuel cells fed with gaseous reactants, wherein said membrane (6) separates an anodic compartment from a cathodic compartment comprising bipolar plates (1), gaskets (4), porous electrodes catalytic layers interposed between the membranes and the electrodes (5) and also see column 12, line 28 *et seq*. The manifolds for feeding the flow of reactants, manifolds for the discharge of the unconverted portions of the reactants, of the inerts and of the produced water, (channels for feeding the gaseous reactants and discharging the excess reactants and condensates column 3, line 59 *et seq*.) and at least an injection point connecting a hydraulic circuit for injecting a water flow inside at least one compartment of the cells (the gas injection can also be used to inject water), said water flow provides contemporaneously for the humidification of the membranes and for the removal of the generated heat, characterized in that at least one compartment of the cells fed with the reactants and water coming from the injection point comprises an electrically and thermally conductive reticulated element (2, see also column 8, line 26 *et seq*. "a pair of gas distributors (2) made of the reticulated tridimensional material of FIG. 2, made of a 50--50 nickel-chromium alloy,)

interposed between the electrodes (5) and the bipolar plates (1), which distributes the water flow though the whole volume occupied by the gaseous reactants.

3. As to claim 2, disclosing that the injection point is outside the compartment, the fuel comes from outside, therefore so is the site for the water injection.

4. As to claim 3, disclosing that the injection point of water is at the inlet of the manifold. Since this is where the fuel enters, and there is no reason water could not be added with the fuel, the claim limitations are met.

5. As to claim 4, disclosing that the manifold is a lower manifold, this goes to orientation, the claim is drawn to an apparatus and there is no reason why it could not be oriented as disclosed.

6. As to claim 7, disclosing that only one of the compartments is fed with water. Please note a minor typographical error: "oneof". The same limitations are illustrated in figure 1.

7. As to claim 8, disclosing that the injection point of water is positioned in channels formed in the gaskets downstream the manifolds. The same is disclosed at column 6, line 55 *et seq.* "a pair of gaskets (4) provided with channels for feeding the gaseous reactants and discharging the excess reactants and condensates".

8. As to claim 9, disclosing that the injection point of water is within the cells, seemingly this is what the manifold is doing with respect to claim 3. It is unclear how the injection point differs from the manifold. The limitation that the "injection point is positioned inside the cells is believed to be met by the manifold limitation.

9. As to claim 10, disclosing that the orientation of the injection of water is substantially parallel to directions reactants flow. This is consistent with a mixture introduced that includes water.

10. As to claims 12-14, disclosing that the reticulated element is deformable by cold pressing and is a metal foam that contains nickel. Column 4, line 32 *et seq*. discloses that FIG. 2 shows a detail of the gas distributor made of the so-called "metal foam", that is a metal reticulated material. Column 8, line 26 *et seq.* that the reticulated element is made of a 50--50 chromium-nickel alloy.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramunni in view of United States Patent No. 5,635,039 to Cisar et al. "Cisar". Each and every limitation of

claim 15 is identically disclosed in Ramunni, as set forth above, except Ramunni fails to explicitly disclose that the reticulated element includes a depression for water distribution. The secondary reference, Cisar, discloses "passages 124" for delivering water see figure 11 and relevant associated text and column 11, line 34 *et seq*. Cisar provides the explicit motivation for making the claimed combination. Namely, Cisar states at column 11, line 34 especially at 42 *et seq*. disclosing that such a modification aids in hydrating the membrane without requiring the reliance on adding water to the reactant streams.

3. As to claim 16, disclosing that the depression is obtained by cold pressing, the manner in which the conduit is made is less relevant than the fact that it can perform in the same manner as the cold pressed channel.

4. As to claim 17, disclosing that the water flow channel is parallel to the reactant flow channels. The same is disclosed *inter alia* in figure 13. See especially elements 172 and 164 and relevant associated text.

5. As to claim 18, disclosing that the channels are serpentine, the same is disclosed in figure 16 and relevant associated text.

6. As to claim 19, disclosing that the flow is substantially orthogonal to the reactant flow, the same is disclosed in figure 11 and relevant associated text.

7. As to claim 20, disclosing that the conduits are defined by an offset, double-comb shaped geometry; see figure 16 and relevant associated text.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gentle E. Winter whose telephone number is (571) 272-1310. The examiner can normally be reached on Monday-Friday 7:00-3:30.

9. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy P. Gulakowski can be reached on (571) 272-1302. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

10. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 273-1310.

Gentle E. Winter
Examiner
Art Unit 1746

March 22, 2004

RANDY GULAKOWSKI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700